

REMARKS

The Applicants respectfully request further examination and reconsideration in view of the amendments made above and the comments set forth below. Claims 1-33 were previously pending in this Application. Within the Office Action, Claims 1-33 have been rejected, and
5 Claims 1, 5, 6, 7, 16, 20, and 31 have been amended. Claim 2 has been canceled. Claims 1, 3-33 are now pending in this application.

Drawings

Within the final Office Action, the drawings were objected to under 37 CFR 1.83(a)
10 because they fail to show “every feature of the invention in the claims”. Specifically, the electrical controller of claim 3, the bearings of claim 6, the filter of claim 16, and the alternative flow path of claim 20.

Fig. 1 is amended to show the electrical controller 220 of claim 3. The electrical
controller element does not constitute new matter. Within the Summary of the Invention, page 2
15 lines 24-25, of the patent application specifies the electrical controller element. Additionally, the Detailed Description of the Invention of the patent application, page 4 lines 25-27 and page 5 line 1, further specifies the electrical controller. Accordingly, the drawings now shows the electrical controller element of Claim 3 and is in a condition of allowance.

The bearings mentioned in Claim 6 are disclosed in Fig. 1 as elements 140 and 141.
20 These elements do not constitute new matter. The bearings are specified within the patent application on page 2, line 25 through page 4, line 2 and on page 6, lines 1-12. Accordingly, the drawing shows the bearing elements of Claim 6 and is in a condition of allowance.

Fig. 1 is amended to show the filter element 230 of Claim 16. The filter element does not
constitute new matter. This element is specified within the patent application on page 6 lines 24.
25 Accordingly, the drawing shows the filter element of Claim 16 is in a condition of allowance.

Fig. 1 is amended to show the alternative flow path 210A, 210B, 210C, 210D, and 210E.
These arrows show the path of the fluid along the alternative flow path. This path is specified in
the patent application on page 3 lines 22-23, page 6 lines 14-15, page 6 lines 20-22.
Accordingly, the drawing shows the alternative flow path specified in Claim 20 and thus Claim
30 20 is in a condition of allowance.

Rejections under 35 U.S.C. § 112

Within the Office Action, claims 1-33 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. Specifically, the specification lacked a description of structure for diverting a portion of the fluid through the pump assembly and back to the pump inlet. The applicants respectfully traverse these objections.

Original claim 1-15, 17-19 does not claim a structure for diverting a portion of the supercritical fluid through the pump assembly. Amended claim 1 and dependent claims 2-15, 17-19 does claim the diversion of a portion of the supercritical fluid through the pump assembly. Fig. 1 is amended to show the alternative flow path and the specification amendment herein (page 6 last full paragraph) describes the alternative flow path for the diverted fluid. This specification amendment does not constitute new matter in that is path is specified in the patent application specification (page 3, lines 13-15; page 6, lines 9-10).

For the reasons given above, the Applicants respectfully submit that claims 1, 3-33 now comply with the written description requirement.

Within the Office Action, claims 5 and 30 are rejected due to an improper product reference for “Cronidur®”.

The specification modification amendment herein, last paragraph of page 5 and continuing to page 6 line 13, provides the chemical description for the martensitic metal Cronidur® 30. Additionally, the claim 5 and 30 are amended to use the product name Cronidur® 30. Since only one product uses the name Cronidur®, one skilled in the art would know that the trademark Cronidur® is synonymous with the product Cronidur® 30 which refers to the only Cronidur® hybrid alloy provided by The Barden Corporation. Therefore, the specification amendment does not constitute new matter.

For the reasons given above, the Applicants respectfully submit that claims 5 and 30 no longer have improper product references and are now in a condition for allowance.

Within the Office Action, claims 6 (mistakenly referred to claim 63 on page 3 of the office action) and 31 are rejected for lacking a description of the structure and definition of “hybrid bearing” and “full complement bearings.”

The structure of the bearing is depicted in Fig. 1 by the bearings elements 140 and 141. One skilled in the arts would know that a “hybrid bearing” refers to a bearing with ceramic balls and steel inside and outside rings. An Internet search for hybrid bearings will find numerous

references to hybrid bearings. The Internet reference below specifies the definition for hybrid bearings and provides 30 references to companies that provide ceramic and hybrid bearings.

“http://bearings.globalspec.com/Industrial-Directory/ceramic_hybrid_bearing”

A print out of this reference is attached.

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For a “full complement bearing”, the structure is again depicted in Fig. 1 by the elements 140 and 141. One skilled in the arts would know that a “full compliment bearing” is defined as: “Rolling bearing without cage in which sum of clearances between rolling elements in each row is less than the diameter of rolling elements and small enough to give satisfactory function of bearing.” The Internet reference below specifies the definition for full compliment bearings.

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“<http://www.maintenanceresources.com/ReferenceLibrary/Bearings/gobt.htm>”.

For the reasons given above, the Applicants respectfully submit that claims 6 and 31 are now in a condition for allowance.

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Within the Office Action, claims 1-33 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, “corrosion resistant bearings” is an unbased comparison and is therefore indefinite.

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One skilled in the art would know that the “corrosion resistant bearings” for a system pumping supercritical fluids would refer to bearings resistant to solvents commonly used with the processing of semiconductor wafers. For example the specification recites silicon nitride balls combined with bearing races made of Cronidur® (page 2, lines 26-27).

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Within the Office Action, claims 6 and 31 recite various bearings in an alternative manner which is indefinite.

Claims 6 and 31 have been amended to recite the bearings in a Markush form.

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Within the Office Action, claims 5, 7, 20 and 30 contain the trademark/tradename Cronidur® or PEEK™. The claim scope is deemed to be indefinite in that the trademark or trade name cannot be used properly to identify any particular material or product.

Claims 5, 7, 20, and 30 are amended to specifically call out the items being claimed. **The claims now cite the full product name for Cronidur®, Cronidur® 30.** Because there is only one product that uses the name Cronidur®, one skilled in the art would know that the trademark Cronidur® is synonymous with the product Cronidur® 30 which refers to the only hybrid alloy provided by The Barden Corporation. The chemical composition of Cronidur® 30 is specified in the herein specification amendment to page 5, the last paragraph beginning on line 27 of the applicant's application. The trademark name for PEEK™ is replaced with the chemical for the product, Polyetheretherketone. The claims have been amended to use this chemical name. The use of this name does not constitute new matter in that the chemical formula for PEEK™ is specified within the patent application on page 5, line 9.

For the reasons given above, the Applicants respectfully submit that claims 5, 7, 20 and 30 are now in a condition for allowance.

Rejections under 35 U.S.C. § 103

Within the Office Action, Claims 1-5, 6, and 8-19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,135,211 to Pezzillo (hereinafter "Pezzillo") in view of U.S. Patent No. 2,993,449 to Harland (hereinafter "Harland") and in view of U.S. Patent No. 6,262,510 to Lungu (hereinafter "Lungu"). The applicants respectfully traverse these rejections.

Pezzillo is directed to pumps for "hard to handle" liquids such as slurries and high temperature liquids [Pezzillo, col. 1, lines 14-15]. What is disclosed is a design that cools the bearing, rotor and stator but were the bearing is protected from the liquid [Pezzillo, col. 1, lines 19-22]. The design teaches a sealed bearing to protect it from the corrosive or abrasive effects of the pumped liquid.

Harland is directed to pumps for corrosive chemicals, to producing high pressure and for the main fluid path to pass through the motor [Harland, col. 1, lines 51-60]. Harland discloses a motor driven pump wherein the rotor is potted in epoxy.

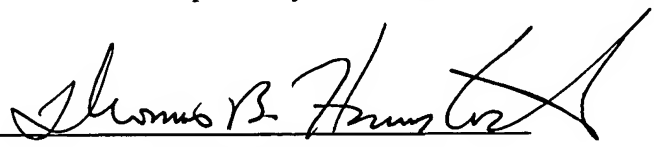
Lungu teaches a low cost motor for pumps and fans. Lungu discloses a brushless DC motor having a controller, a motor which drives a pump, and a stator sealed from the fluid via a polymer sleeve.

The Applicant's application discloses an invention for pumping supercritical fluids wherein some of the supercritical fluid is diverted from the pump through the motor's rotor and stator and bearing assemblies. The novel difference over the prior art is that the supercritical fluid provides for the superior removal of particles and contaminants generated by the motor. Thus while cooling the rotor, stator and bearings, the supercritical fluid also removes particles and thus cleans the bearings. The particle removal is an important attribute of the invention because of the positive effects it has on the bearing life. Also important to the Applicant's invention is that the bearings are not seals allowing the supercritical fluid to flow through the system thus allowing the supercritical fluid to clean the bearings and more effectively cool the bearings. Pezzillo disclosed a pump where the bearings are sealed to protect the elements from the liquid being pumped [Pezzillo, col. 1, lines 19-22]. Thus the differences cited herein distinguish Pezzillo from the Applicant's invention.

The Applicants respectfully submit that Claims 1-33 are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, he is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,

Dated: 6-10-05

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CERTIFICATE OF MAILING (37 CFR § 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

HAVERSTOCK & OWENS LLP.

Date: 6-10-05

By: 



Annotated

